

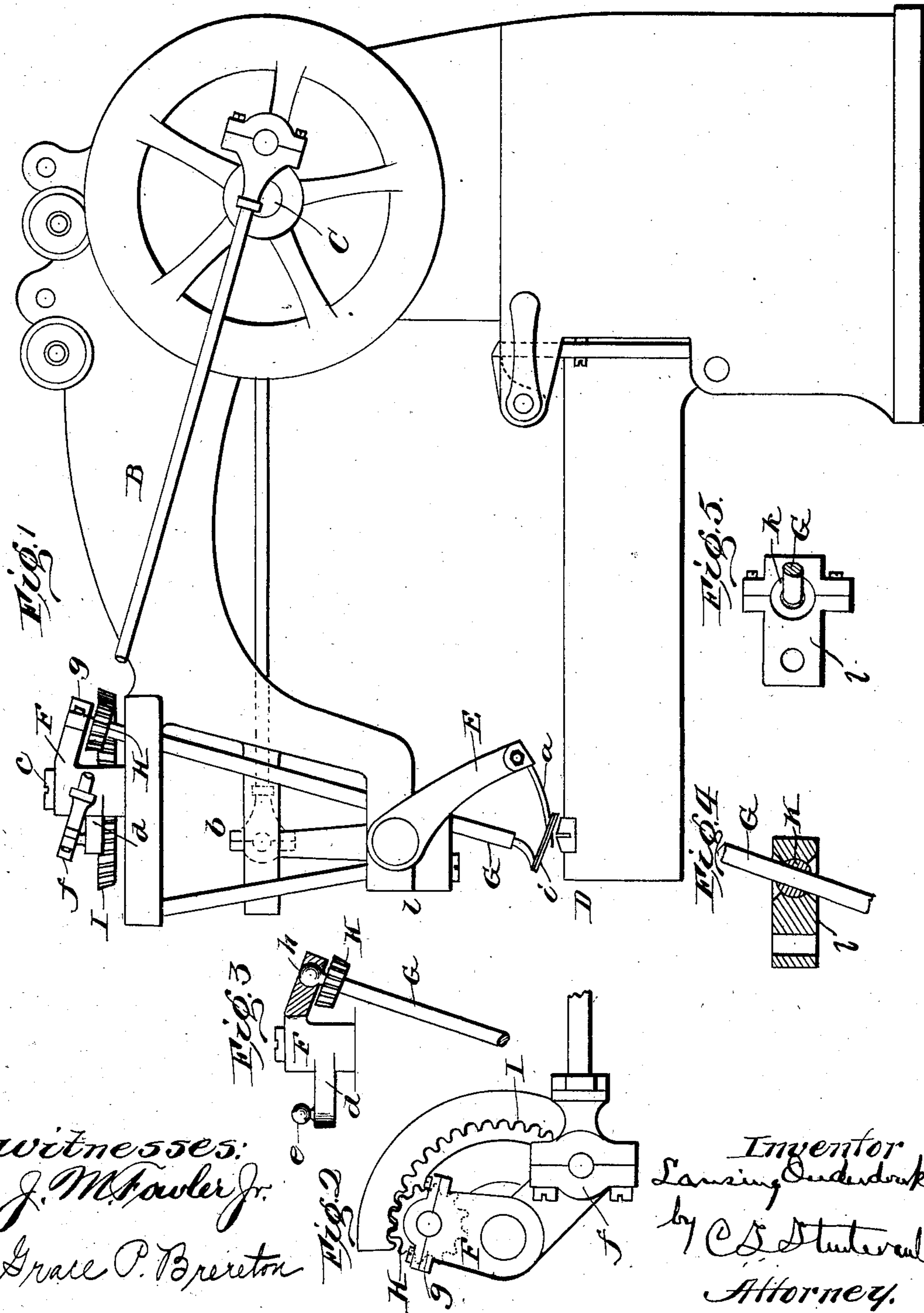
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PATENTED FEB. 17, 1903.

L. ONDERDONK.
LOOPER MECHANISM FOR SEWING MACHINES.

APPLICATION FILED APR. 5, 1899.

NO MODEL.



UNITED STATES PATENT OFFICE.

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LOOPER MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 721,078, dated February 17, 1903.

Application filed April 5, 1899. Serial No. 711,830. (No model.)

To all whom it may concern:

Be it known that I, LANSING ONDERDONK, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to an improvement in sewing-machines, and especially to a looper movement for blindstitch sewing-machines.

In an application (Case A) filed by me on the 29th day of March, 1899, Serial No. 711,025, I have shown, described, and claimed a looper movement for sewing-machines, and in one figure of the drawings, therefore, have illustrated briefly as a modification the looper movement, which is made the basis of this present case.

The invention therefore consists, primarily, of a stitch-forming mechanism for sewing-machines, including a looper-supporting rod having a universal pivot and means for imparting to it an oscillatory movement on its own axis and a bodily movement, whereby as it oscillates on its own axis it is raised and lowered between its extremes of movement.

Secondly, it comprises a blindstitch sewing-machine having a work-support upon which the fabric is placed and fed and stitch-forming mechanism including a needle reciprocating back and forth across the line of the seam, a looper coöperating with the needle to form stitches and a bar or rod supporting said looper, mounted in a universal pivot, and means for operating said looper-supporting bar or rod, said looper between its extremes of movement partaking of a bodily rise and fall, both said parts arranged and operating entirely above the work-support of the machine.

Thirdly, it comprises special mechanism for oscillating the looper-bar whether the same be universally pivoted or not.

Finally, the invention consists in various details of construction and arrangement of parts, all as hereinafter described, and referred to in the appended claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of so much of a sewing-machine embodying my invention as is necessary to a complete understanding of the invention. Fig. 2 is a top plan view of the looper-operating mechanism. Fig. 3 is a detail view of the upper end of the looper-supporting rod and its operating-lever. Fig. 4 is a sectional view showing the manner of pivoting the looper-rod, and Fig. 5 is a detail plan view of Fig. 4.

In the drawings, A represents the standard of the machine; B, the gooseneck; C, the main driving-shaft; D, the work-plate, herein shown as a cylindrical casing; E, the needle-lever, carrying the curved needle *a* and operated by the pitman connection *b* with the driving-shaft.

Mounted upon the forward end or head of the machine is an angle-piece F, pivoted upon a screw-bolt or operating-lever stud *c*, fastened to the head of the machine. One angular arm *d* of this angle-piece is provided with a ball-stud *e*, a pitman connection *f* running through to the main driving-shaft C. The other angular arm *g* of the angle-piece F is provided with a socket to receive a ball *h* on the upper end of the looper-supporting rod or bar G, by which the latter is supported. Adjacent its upper end the looper-supporting bar or rod G is provided with a gear or pinion H, fixed upon it, which is in mesh with a stationary gear I on the head of the machine, and it will thus be seen that as the main shaft revolves the looper-supporting bar or rod is oscillated on its axis, which is inclined to the vertical, so that at one extremity of its movement the looper *i* will be above the needle, while at the other extremity it will be below it. As a further and special improvement I have provided a universal pivot or joint for the looper-supporting bar on the head of the machine, which is particularly illustrated in Figs. 4 and 5, in which a universal bearing, such as a ball *k*, is set in a socket in one of the lugs *l* of the machine-frame, this universal bearing being set off from a vertical line centrally through the operating-lever stud,

and by this arrangement the bar has a slight sliding movement in said bearing. As the bar G oscillates on its axis it has an up-and-down movement imparted to it, thus causing the looper to describe a path between the two extremes of its movement, which will allow it to escape any obstructions, such as seams, extra thicknesses of cloth, &c. It will be noted that so far as the operation of the looper is concerned it is not necessary for the universal bearing to be off from a vertical line central through the operating-lever stud. When the looper-carrying bar stands directly back—that is, in line with the vertical line central with the operating-lever stud—the point of the looper stands back of the needle preparatory to taking the needle-loop, the point inclining upward substantially at right angles with a line central to the looper-operating shaft. As this shaft is swung around to the right, the small gear on the looper-operating shaft running against the stationary gear, the looper-supporting bar is turned on its axis and, being turned with the bar at this incline, carries the point of the looper above the path of the needle sufficiently high to cause it to pass over the material sewed. The bar being moved around to the extreme right and at the same time being turned, the motion of the looper completed, the looper-bar being at an incline, and the point of the looper correspondingly inclined, the point of the looper will have been carried down below and beyond the path of the needle, so that the needle going forward to enter the goods will engage the looper's thread. Thus the point of the looper takes a gyrating movement from a point preparatory to taking the needle's loop over the edge of material sewed and around and under and beyond the path of the needle.

It will be understood that I do not wish to be limited to the precise construction and arrangement of the parts shown in the drawings, as various modifications and changes in the construction of the parts may be made without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a sewing-machine, a work-support upon which the fabric is placed and fed, suitable stitch-forming mechanism including a needle reciprocating back and forth from side to side of the central line of the seam, and an upright looper-supporting bar mounted on a universal pivot and having means for oscillating it on its axis, and for bodily swinging it on its pivot, said parts of the stitch-forming mechanism being arranged and operating above the work-support, said parts being so arranged that the oscillation of the looper carries it from one side of the seam to the other side, and the bodily movement of the looper changes the position of the plane of movement thereof, whereby the looper is carried

ried from one side of the needle to the other; substantially as described.

2. In a sewing-machine, a work-support upon which the fabric is placed and upon which it is fed, suitable stitch-forming mechanism including a reciprocating needle, and a looper-supporting bar inclined from the vertical, mounted on a universal pivot, and adapted also to oscillate on its axis, both said mentioned parts of the stitch-forming mechanism being arranged and operating above the work-support, and means for operating said looper-supporting bar, said parts being so arranged that the oscillation of the looper carries it from one side of the seam to the other side, and the bodily movement of the looper changes the position of the plane of movement thereof, whereby the looper is carried from one side of the needle to the other; substantially as described.

3. In a sewing-machine, suitable stitch-forming mechanism, including a reciprocating needle, and a looper-supporting rod or bar with means for oscillating it on its own axis, and a universal pivot intermediate the ends of said looper-supporting rod or bar, said looper-supporting rod or bar and needle being arranged entirely above the work-support of the machine, and means for imparting to said looper-supporting bar or rod a bodily movement on said universal pivot, said parts being so arranged that the oscillation of the looper carries it from one side of the seam to the other side, and the bodily movement of the looper changes the position of the plane of movement thereof, whereby the looper is carried from one side of the needle to the other; substantially as described.

4. In a blindstitch sewing-machine, a work-support upon which the fabric is placed and fed, and stitch-forming mechanism including a needle reciprocating in a substantially horizontal plane, a looper cooperating with the needle to form stitches, and a bar or rod supporting said looper mounted on a universal pivot, and means for operating said looper-supporting bar or rod, said looper between its extremes of movement partaking of a bodily rise and fall, both said parts arranged and operating entirely above the work-support of the machine, said parts being so arranged that the oscillation of the looper carries it from one side of the seam to the other side, and the bodily movement of the looper changes the position of the plane of movement thereof, whereby the looper is carried from one side of the needle to the other; substantially as described.

5. In a sewing-machine, a work-support, a driving-shaft, suitable stitch-forming mechanism including a reciprocating needle, a looper-supporting rod arranged at an inclination to the vertical, connections between it and the driving-shaft for oscillating it, said connections including a stationary gear, and a gear moving with the looper-supporting rod, said parts being arranged and operating en-

tirely above the work-support, the axis of oscillation of the looper intersecting the axis of the bodily-swinging movement thereof; substantially as described.

5 6. In a sewing-machine, suitable stitch-forming mechanism comprising a looper-supporting rod, and connections between it and the driving-shaft for oscillating it, said connections including a stationary gear and a
10 gear moving with the looper-supporting rod, said looper-supporting rod being inclined to the vertical, the axis of oscillation of the looper intersecting the axis of the bodily-swinging movement thereof; substantially as described.

15 7. In a sewing-machine, a looper-supporting rod arranged at an inclination to the vertical, an angle-piece attached to the upper end of said looper-supporting rod, said angle-piece being pivotally secured to the machine-
20 frame with means for oscillating it, a segmental gear attached to the machine-frame, a pinion fixed on the looper-supporting rod and meshing with the segmental gear, whereby as the angle-piece is oscillated the looper-
25 supporting bar is oscillated, the axis of oscillation of the looper intersecting the axis of the bodily-swinging movement thereof; substantially as described.

30 8. In a sewing-machine, a looper-supporting rod, an angle-piece attached to the upper end of said looper-supporting rod, said angle-piece being pivotally secured to the machine-frame with means for oscillating it, a segmental gear attached to the machine-frame, a pin-
35 ion fixed on the looper-supporting rod and meshing with the segmental gear, whereby as the angle-piece is oscillated the looper-supporting bar is oscillated about its own axis, the axis of oscillation of the looper intersect-
40 ing the axis of the bodily-swinging movement thereof; substantially as described.

9. In a sewing-machine, a looper-supporting rod, an angle-piece pivoted upon the ma-

chine-frame, and means for oscillating it, said looper-supporting rod having a universal
45 pivot and pivotally connected at its upper end to the angle-piece, a pinion fixed on the looper-supporting rod, and a stationary seg-
50 mental gear on the machine-frame, in engagement with the pinion on the looper-supporting rod; substantially as described.

10. In a sewing-machine, suitable stitch-forming mechanism, including a reciprocating
55 needle, a looper-supporting bar or rod having a universal-pivot connection with a station-
ary part of the machine-frame, intermediate its ends, means operatively connected with
one end of said looper-supporting bar or rod, whereby the same is caused to travel bodily
60 and swing on its pivot, and also caused to oscillate on its own axis; substantially as described.

11. In a sewing-machine, suitable stitch-forming mechanism, including a reciprocating
65 needle, a looper-supporting bar or rod having a universal-pivot connection with a station-
ary part of the machine-frame, intermediate its ends, means operatively connected with
one end of said looper-supporting bar or rod, whereby the same is caused to travel bodily
70 and swing on its pivot, and also caused to oscillate on its own axis, said means including
an angle-piece pivoted to the machine-frame to which the upper end of the bar is attached,
and a stationary gear on the machine-frame,
75 and a gear on the looper-supporting bar or rod meshing therewith, and means for swinging the angle-piece on its pivot; substantially as described.

In testimony whereof I affix my signature
80 in presence of two witnesses.

LANSING ONDERDONK.

Witnesses:

WILBUR L. SWIFT,
J. H. HOWELL.